

Date: Fri, 4 Nov 94 04:30:39 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: List
Subject: Ham-Homebrew Digest V94 #325
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 4 Nov 94 Volume 94 : Issue 325

Today's Topics:

*** Q: WHAT KIND OF PEOPLE ON THE NET ?
 Communications Quarterly (3 msgs)
 Help anyone please!
 HELP NEEDED PLEASE ANYONE!
 Local TV Jammer
 Need phone# of crystal mfr's
 PCB Board from laser print??
 Quad Op Amp ??
VCO in Key Components of Mod RCVR Design (QST)
 Where does the power go?

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 3 Nov 1994 17:05:11 GMT
From: cisitm@albert.cad.cea.fr (Pierre Didierjean)
Subject: *** Q: WHAT KIND OF PEOPLE ON THE NET ?

I'd like to know what kind of people i find on the net.

Students, Commercials, Adminitrations, Scientifics or what ??

Is anybody knows that or have statistical results ?

What are YOU doing in life ?

I am a system administrator.

Thanks for the answers and sorry for my english

Bye

```
+-----+
|      Pierre DIDIERJEAN      |
|                               |
|      Administrateur Systeme UNIX      |
|      Cisi, Aix-en-Provence      |
|      France      |
+-----+
| email :  cisitm@albert.cad.cea.fr      |
+-----+
```

Date: Wed, 2 Nov 1994 16:33:47 GMT
From: TFG073@email.mot.com (Ralf Gregory)
Subject: Communications Quarterly

I recently found "Communications Quaterly" referenced in an
technical article.
What type of journal is it ? Where can I get it and what is the
price?

Thanks

Ralf

Date: 3 Nov 1994 17:02:36 GMT
From: phil@hansen.ncd.com (Phil Graham)
Subject: Communications Quarterly

I was disappointed to find many of the articles were reprints of articles from
CQ :-(

I did not resubscribe!

Phil
de kj6nn

Date: 2 Nov 94 16:29:04 EST

From: lieser@beast.cs.hh.ab.com (When the government outlaws encryption,
only%fgl^@3Q}m,7X[d*AA;@)

Subject: Communications Quarterly

In article <TFG073-0211941734460001@145.6.2.228>, TFG073@email.mot.com (Ralf Gregory) writes:

> I recently found "Communications Quaterly" referenced in an
> technical article.
> What type of journal is it ? Where can I get it and what is the
> price?

Hi Ralf,

It's called "Communications Quarterly -- The Journal of Communications Technology". It's published 4 times a year by CQ Communications, Inc. Domestic subscriptions per year are \$29.95, foreign is \$39.95. They are at 76 North Broadway, Hicksville, NY 11801. Phone (516) 681-2922. The issue I'm looking at (Summer '94) has 112 pages, with articles on GPS, The Solar Spectrum, Dummy Antennas, 100 Watt HF MOSFET Amplifier, and Designing the Long Wire Antenna System, among other things. It's more technical than your average ham magazine, I would say. More expensive too -- hard to find on a newsstand, and \$9.95 if you do. I couldn't resist, though -- really great article on GPS.

Ed Lieser

Date: Tue, 01 Nov 1994 09:09:50 -0800

From: sdarragh@cisco.com (Scott Darragh)

Subject: Help anyone please!

I need help! I am trying to build a multiband QRP rig. I would like to cover the following bands: 80,40,30,20,15,10. Or at the very least 80,40,15,10(novice bands.) I would like to try and get min 3w and max 5w per band. I would like it to operate on a 12-13.8 power source either battery or supply. By the way JUST CW. I figure it may be to hard to incorporate a SSB for now.

Questions:

#1 Anyone know of any plans for such a beast?

#2 Can I use the same dial to tune all the bands or will I need to incorporate many tuning knobs?

Date: Fri, 4 Nov 1994 02:48:40 GMT
From: T.Stewart@massey.ac.nz
Subject: Local TV Jammer

I've got kids who occasionally get up late and watch TV when we're asleep (and they are suppose to be too!!).

Anyone have any ideas on how to build a jammer (or modify existing equipment) which will interfere with stations on the VHF/UHF band. Only for 50 meters or so of course, so as not to interfere with the neighbours.

Is this simple or is the task quite complex?

Cheers

Terry

```
*****
* Terry Stewart *
* Department of Plant Science *
* Massey University *
* Palmerston North *
* New Zealand *
* *
* T.Stewart@massey.ac.nz *
*****
```

Date: Wed, 2 Nov 1994 00:25:01 GMT
From: tomb@lsid.hp.com (Tom Bruhns)
Subject: Need phone# of crystal mfr's

David Feldman (dgf@netcom.com) wrote:
: I know this was discussed recently, but I need phone number(s) for outfit
: to make custom crystal, such as JAN, International Crystal, etc.; it's
: been a long time since I have had xtals made, and I've forgotten who the
: vendors are and where they are located.

We need an FAQ for this. ;-)

ICM: 1-800-ICM-XTAL
JAN: 1-800-JAN-XTAL

Notice how similar the numbers come out...

Date: Wed, 2 Nov 1994 18:46:17 GMT
From: jdc@cci.com (James D. Cronin)
Subject: PCB Board from laser print??

In article <1994Nov01.204639.125036@zeus.aix.calpoly.edu>,
Sean Norris <snorris@harp.aix.calpoly.edu> wrote:

>I'm working on a project that requires me to make a PC board and I want
>it to be as hassle free as possible. I have seen many ads about some
>special paper which you can print with a laser printer, iron it onto the
>PC board, peel it off and then etch. Has anyone used this technique? If
>so, is it reliable? My project is all surface mount and at very high
>frequencies so the traces must be small and sharp.
>If anyone has any experience/tips/brands/etc. I would appreciate it very
>much if you could E-mail me.

I've done toner transfer with regular paper and there are problems with
the toner not sticking. There is paper with a water soluble coating that
is said to work well.

Anybody know what the paper is coated with?

73...Jim N2VNO

>
>Thanks,
>
>Sean

>
>-----
>Sean Norris snorris@trumpet.aix.calpoly.edu
>--KE6BTE-- Loyalty, above all else.

>-----
>

Date: 4 Nov 1994 06:12:40 GMT
From: DFN67A@prodigy.com (FRANK DAMERON)
Subject: Quad Op Amp ??

I am building the gel cell charger that is in the 1993 ARRL handbook. I
am out of town at the moment and do not know the page number or the name
of the project in the handbook. However, it is a small charger that will
charge gell cell batteries and can be switched between a full charge and
float charge. The project calls for a LM3900 Quad Op Amp. I bought a
LM2900 and was told that it work just as well and that the pinouts are
the same.

Now that I have the project almost finished I cannot get it to work properly. I get the right test voltage and when i adjust the trimpots the LED indicator will not light to tell me there is a full charge. I checked and rechecked the wiring, solder joints, voltages and the LED.

Will the LM2900 work the same as the LM3900??

What other ideas ??

TNX

<<=====>>

FRANK DAMERON {N5TYD}

DFNF67A@prodigy.com

Date: 3 Nov 1994 17:46:34 GMT
From: rkarlqu@scd.hp.com (Richard Karlquist)
Subject: VCO in Key Components of Mod RCVR Design (QST)

In article <3988e8\$klb@bmerha64.bnr.ca>,
Bill Kirkland <kirkland@bgty22.bnr.ca> wrote:
>Does anyone have any information on the design of the VCO diagrammed
>in the second part of the series "Key Components of Modern Receiver
>Design"? I am particularly interested in how the 9.2nH coil is tapped and
>any information on the source biasing scheme for the FET oscillator.
>
>Bill Kirkland
>

I think what is really going on here is that Rhode has a dozen or so tuning diodes in parallel and uses the parasitic inductance (due to the leads and/or pcb traces) as the tuning inductance. It's easy to get 9.2 nH by paralleling twelve 110 nH. inductors. My guess is that the "taps" are connections to the leads of the tuning diodes right where they emerge from the package, minus any parasitic inductance. The limitation to doing this is that the Q of parasitic inductors is unlikely to be very high and the mutual coupling between the different parts of the inductor is also unlikely to be very high. This results in the "tapped inductor" looking more like several independent inductors in series with the "taps" at the junctions of the inductors. This is *not* equivalent to a true tapped inductor, but it may be good enough to work in this case.

A number of oscillators of this type are in use at HP. The highest number of diodes I have heard of is 96! An HP engineer (who Rhode neglected to give credit to) was granted a patent for this oscillator.

Rick N6RK
rkarlqu@scd.hp.com

Date: Wed, 2 Nov 1994 18:41:52 GMT
From: tomb@lsid.hp.com (Tom Bruhns)
Subject: Where does the power go?

Oh, dear. I should know better than to jump in here, but...

First, if you model a source as a Thevenin or a Norton equivalent, you should be aware that it is just a model to tell you what you can measure at the terminals. It does NOT tell you, necessarily, what is going on inside the "black box" that is the source. Consider, for example, a 1 volt open circuit, 1 ohm output resistance source. If you model this as a Thevenin equivalent, then with an open-circuit load, no power is dissipated in the source resistance, and if you short the output, 1 watt (1 volt across 1 ohm) is dissipated. However, an equally good model in terms of the performance measured at the output port is a Norton model: a 1 amp current source, shunted by a 1 ohm resistor. You can't tell the difference between the Norton and the Thevenin sources from the performance at the terminals. But note that the Norton source would appear to dissipate 1 watt in its internal resistance when the output is open and dissipate nothing if the output is shorted.

What about practical sources? Well, it depends tremendously on just how they are built. It's quite possible to build a source with essentially zero output resistance, and you can even make the output resistance negative. A three-terminal linear regulator circuit is a good example. An LM309 can have an output resistance in the .01 ohm region easily. But the power it dissipates depends heavily on the supply voltage. It's clearly not just the load current through an 0.01 ohm resistance. At the other extreme, it's possible to design a current source of say 1 amp with an output resistance of megohms. The actual power dissipation in the circuit goes up as the load resistance drops, so from the paragraph above, you might think you should model it as a voltage source in series with a resistance, but a 1 million volt source in series with a megohm would dissipate LOTS of power when delivering current to, say, a 1 ohm load. SO-- DO NOT assume that you can calculate the power dissipation in a real source from a Thevenin or Norton model of the output terminal performance of that source. Though I've used DC examples here, the same is true of AC (RF) sources as well.

As for power dissipated in a tube or a transistor--well, all I can say is don't believe everything you read. If you've had the opportunity to watch a tube like an 813 in operation at high powers, and seen the plate glowing red, please ask yourself, is the significant power dissipation in contacts

and in wires, or is there something special going on at that plate?

It seems to still be true that $P=V \cdot I$, and that works even for very short time periods. If you are willing to figure out the Vs and Is for all the points in a cycle and add up the powers at each point, you can get the power dissipated in each element: tube (or transistor or power mosfet or tunnel diode or varactor or whatever), parasitic resistances, and load resistance. You can put in reactances wherever you want; you can even put in non-linear elements. If your mathematical model accurately represents the components you are using, then you can calculate powers and efficiencies quite accurately. You will probably even understand why that tube plate gets so hot when you are done.

73, K7ITM

Date: 3 Nov 1994 17:48:42 GMT
From: Cecil_A_Moore@ccm.ch.intel.com

References<38qp6u\$utn@info2.rus.uni-stuttgart.de> <3939lq\$a1l@chnews.intel.com>,
<1994Nov1.173708.10808@arrl.org>
Subject: Re: Where does the power go? Part 2

In article <1994Nov1.173708.10808@arrl.org>,
Jon Bloom (KE3Z) <jbloom@arrl.org> wrote:
>

>In an earlier post you said that with a properly tuned antenna tuner in
>line, a conjugate match would be achieved. (I'm paraphrasing, but I think
>that's accurate.) Presumably, the impedance looking into the antenna tuner
>is 50 ohms. If the output impedance of the transmitter is not 50 ohms, how
>is there a conjugate match? (Hint: there isn't.)

Sorry if I wasn't clear. I never said there was a conjugate match between the transmitter and the antenna tuner. When I said the antenna tuner achieves a conjugate match I thought it would be obvious that I was talking about the antenna side. In fact, I argued that the transmitter output impedance is considerably lower than 50 ohms and therefore, not a conjugate match so there would be some re-reflection of reflected power at the transmitter output.

Let's say the output stage dissipates 20w safely and out of the 100w generated, sends 80w to the load. If one really did achieve a conjugate match at the output stage, the load would receive only about 20w because the foldback circuits would limit the output stage dissipation to the 20w design limit.

--

73, Cecil, KG7BK, 00TC (All my own personal fuzzy logic, not Intel's)

Date: Tue, 1 Nov 1994 18:42:45 GMT
From: kludge@netcom.com (Scott Dorsey)

References<1994Oct31.001225.19727@ke4zv.atl.ga.us> <kludgeCyK1p5.95D@netcom.com>,
<395svn\$ksa@kelly.teleport.com>
Subject: Re: THE LITTLE RAZOR BLADE RADIO (UPDATE)

In article <395svn\$ksa@kelly.teleport.com> burt@teleport.com (Burt Keeble) writes:
>
>Well, how do I make a copper oxide detector? Maybe that would be a
>better component?

Take a piece of copper plumbing that is old and corroded. Shine up one corner and solder a wire to it. Now, file another wire to a point, and rest it very lightly on the surface of the pipe. You may have to probe around to find a good spot, but this is a very reliable rectifier.

--scott

--

"C'est un Nagra. C'est suisse, et tres, tres precis."

Date: Thu, 3 Nov 1994 15:17:44 GMT
From: mack@ncifcrf.gov (Joe Mack)

References<38hv7i\$mka@charm.magnus.acs.ohio-st <38i384\$mr3@charm.magnus.acs.ohio-state.edu>,
<38qukv\$g6k@acorn.acorn.co.uk>
Subject: Re: Q: Al heatsinks and black paint.

In article <38qukv\$g6k@acorn.acorn.co.uk> agodwin@acorn.co.uk (Adrian Godwin) writes:

>In article <38i384\$mr3@charm.magnus.acs.ohio-state.edu>,
>Steve Bertsch <sbertsch@magnus.acs.ohio-state.edu> wrote:
>>I looked up the reference on heat sinks in National Semiconductor's
>>_Voltage Regulator Handbook_ (c)1982.

>>

>>-----snip 'n' save-----

>>

>

>(I did)

>

>However, heatsinks don't only lose heat by radiation - they also
>conduct it to air, circulated either forcibly or by convection.

>

>I don't know what the relative heat losses by various methods are,

>but I suspect the emissivity doesn't tell the whole story - improving
>emissivity by a factor of 15 probably doesn't reduce the thermal
>resistance by the same order (especially if some of the emitting
>surfaces face each other - black surfaces absorb more radiation, too).
>

Spray it with a thin coating of matte black Krylon - makes a world of
difference.

Joe Mack NA3T
mack@ncifcrf.gov

>-adrian
>
>

End of Ham-Homebrew Digest V94 #325
